

JUL 14 2003

Substitute PTO/USBA (06-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1470-04

Complete If Known

Application Number	09/921,645
Filing Date	August 3, 2001
First Named Inventor	Meade, Thomas
Group Art Unit	1637
Examiner Name	Strzelecka, Teresa, Ph.D.

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

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of

11

Attorney Docket Number

A-64411-2/RFT/RMS/RMK

U.S. PATENT DOCUMENTS					
Examiner Initials*	Ctg No.	U.S. Patent Document Number-Kind Code ² (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
TS	A0	4,704,103	11/1987	Bowers et al.	duplicate
TS	A1	4,707,352	11/1987	Stavrianopoulos	
TS	A2	4,707,440	11/1987	Stavrianopoulos	
TS	A3	4,711,955	12/1987	Ward et al.	
TS	A4	4,755,458	7/1988	Rabbani et al.	
TS	A5	4,787,983	4/1989	MacConnell	duplicate
TS	A6	4,840,693	8/1989	Hill et al.	
TS	A7	4,849,513	7/1989	Smith et al.	
TS	A8	4,888,103	9/1989	Stavrianopoulos et al.	
TS	A9	4,894,325	1/1990	Englehardt et al.	
TS	A10	4,943,523	7/1990	Stavrianopoulos	
TS	A11	4,945,045	7/1990	Forrest et al.	duplicate
TS	A12	4,952,685	8/1990	Stavrianopoulos	
TS	A13	4,994,373	2/1991	Stavrianopoulos	
TS	A14	5,002,885	3/1991	Stavrianopoulos	
TS	A15	5,013,831	5/1991	Stavrianopoulos	
TS	A16	5,082,830	1/1992	Brakel et al.	
TS	A17	5,089,112	2/1992	Skotheim et al.	duplicate
TS	A18	5,175,269	12/1992	Stavrianopoulos	
TS	A19	5,180,968	1/1993	Bruckenstiel et al.	
TS	A20	5,241,060	8/1993	Englehardt et al.	
TS	A21	5,242,828	9/1993	Bergstrom et al.	
TS	A22	5,278,043	1/1995	Bannwarth et al.	
TS	A23	5,312,527	5/1994	Mikkelsen et al.	
TS	A24	5,328,824	7/1994	Ward et al.	
TS	A25	5,358,786	10/1994	Heller et al.	duplicate
TS	A26	5,394,272	2/1995	O'Daly et al.	duplicate
TS	A27	5,403,451	4/1995	Rivello et al.	
TS	A28	5,436,161	7/1995	Bergstrom et al.	
Examiner Signature	Teresa Strzelecka			Date Considered	11/31/03

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

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Substitute for form 1449A/PTO

Complete If Known

Application Number	08/921,645
Filing Date	August 3, 2001
First Named Inventor	Meade, Thomas
Group Art Unit	1637
Examiner Name	Strzelecka, Teresa, Ph.D.

INFORMATION DISCLOSURE
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Sheet

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Attorney Docket Number

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U.S. PATENT DOCUMENTS

Examiner Initials*	Citeq No.	U.S. Patent Document Number-Kind Code ² (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A29	5,443,701	8/1995	Willner et al.	duplicate
TS	A30	5,449,767	9/1995	Ward et al.	
	A31	5,472,881	12/1995	Beebe et al.	
	A32	5,476,928	12/1995	Ward et al.	
	A33	5,552,270	9/1996	Khrapko et al.	
	A34	5,565,552	10/1996	Magda et al.	
	A35	5,571,568	11/1996	Ribi et al.	
	A36	5,573,906	11/1996	Bannwarth et al.	
	A37	5,591,578	1/1997	Meade et al.	
	A38	5,595,908	1/1997	Fawcett et al.	
	A39	5,601,982	2/1997	Sargent et al.	
TS	A40	5,620,850	4/1997	Bamdad et al.	
	A41	5,632,957	5/1997	Heller et al.	duplicate
	A42	5,700,667	12/1997	Marble et al.	duplicate
TS	A43	5,705,348	1/1998	Meade et al.	
	A44	5,741,700	4/1998	Ershov et al.	
	A45	5,756,050	5/1998	Ershov et al.	
	A46	5,770,369	6/1998	Meade et al.	
	A47	5,770,721	6/1998	Ershov et al.	
	A48	5,776,672	7/1998	Hashimoto et al.	
	A49	5,780,234	7/1998	Meade et al.	
	A50	5,824,473	10/1998	Meade et al.	
	A51	5,837,850	11/1998	Tecule et al.	
	A52	5,849,486	12/1998	Heller et al.	
	A53	5,851,772	12/1998	Mirzabekov et al.	
	A54	5,952,172	9/1999	Meade et al.	
	A55	6,087,100	7/2000	Meade et al.	
TS	A56	6,096,825	8/2000	Gamler	

Examiner Signature	Teresa Strzelecka	Date Considered	11/31/03
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Substitute PTO/SB/8A (08-00)

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

3

of

11

Complete If Known

Application Number	09/921,645
Filing Date	August 3, 2001
First Named Inventor	Meade, Thomas
Group Art Unit	1637
Examiner Name	Strzelecka, Teresa, Ph.D.
Attorney Docket Number	A-64411-2/RFT/RMS/RMK

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U.S. PATENT DOCUMENTS

Examiner Initials ¹	CK# No.	U.S. Patent Document Number-Kind Code ² (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
TS	A57	6,177,250	1/2001	Meade et al.	
	A58	6,180,352	1/2001	Meade et al.	
	A59	6,200,761	3/2001	Meade et al.	
	A60	6,207,369	B1	Wohlstadter et al.	
TS	A61	6,238,870	5/2001	Meade et al.	

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Examiner Initials ¹	Ck# No.	Foreign Patent Document Country Code ⁴ Number ⁴ Kind Code ⁵ (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
TS	B1	EP 0 234 938	A2	2/1987	Cranfield Inst. of Tech.	
	B2	EP 0 229 943	B1	7/1987	Molecular Biosystems Inc.	
	B3	EP 0 599 337	A2	1/1994	Canon Kabushiki Kaisha	
	B4	EP 0 063 879	A2	11/1982	Yale University	
	B5	EP 0 515 615		9/1998	Boehringer Mannheim	
	B6	CA 2 090 904	A1	9/1993	F. Hoffman-La Roche	
	B7	JP 238,166	A	1988	Mitsubishi Corp.	Abstract
	B8	JP 6-41183	A2	1994	Mitsubishi Corp.	Abstract
	B9	WO 88/05815	A1	3/1985	Genentech International Inc.	
	B10	WO 90/05732	A1	5/1990	Columbia Univ.	
	B11	WO 92/10757	A1	6/1992	Boehringer Mannheim	
	B12	WO 93/22678	A2	11/1993	Mass Inst. of Tech.	
	B13	WO 93/10267	A1	5/1993	IGEN, Inc.	
	B14	WO 94/22889	A1	10/1994	Cis Bio International	In French
	B15	WO 95/15971	A2	6/1995	Calif. Inst. of Technology	Abstract Only
	B16	WO 96/40712	A1	12/1996	Calif. Inst. of Technology	
	B17	WO 97/01646	A2	1/1997	Univ. of N. Carolina	
	B18	WO 97/44851	A1	11/1997	AU Membrane and Biotech.	
	B19	WO 97/27329	A1	7/1997	Univ. of Chicago	
TS	B20	WO 98/27229	A1	8/1998	Univ. of Chicago	

Examiner Signature	Teresa Strzelecka	Date Considered	11/13/03
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²Unique citation designation number. ³ See attached Kind of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449A/PTO				Complete If Known	
				Application Number	08/921,645
				Filing Date	August 3, 2001
				First Named Inventor	Meade, Thomas
				Group Art Unit	1637
				Examiner Name	Strzelecka, Teresa, Ph.D.
Sheet	4	of	11	Attorney Docket Number	A-84411-2/RFT/RMS/RMK

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.	Foreign Patent Document Country Code ² Number ¹ Kind Code ³ (If known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁴
TS	B21	WO 98/28444	A2	7/1998	Univ. of Chicago	
	B22	WO 98/35232	A2	8/1998	Univ. of N. Carolina	
	B23	WO 99/57425	A2	12/1999	Clinical Micro Systems	
	B24	WO 99/14596	A1	3/1999	AB Sangtec Medical	
	B25	WO 99/37819	A2	7/1999	Clinical Micro Systems	
	B26	EP 0 589 867	B1	4/1998	Pharmacia Biosensor	
TS	B27	WO 90/05303	A1	5/1990	Pharmacia AB	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

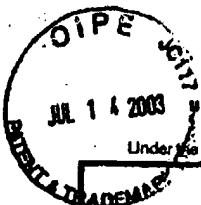
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁴
TS	C1	AIZAWA, et al., "Integrated Molecular Systems for Biosensors," Sensors and Actuators B Chemical, B 24-25:1-5 (1995)	
	C2	ALBERS, et al., "Design of Novel Molecular Wires for Realizing Long-Distance Electron Transfer," Biochemistry and Bioenergetics, 42:25-33 (1997).	
	C3	ALLEMAN, K.S., et al., "Electrochemical Rectification at a Monolayer-Modified Electrode," J. Phys. Chem., 100:17050-17058 (1996).	
	C4	ARKIN, et al. "Evidence for Photoelectron Transfer Through DNA Intercalation," J. Inorganic Biochem. Abstracts, 6th International Conference on Bioinorganic Chemistry, 51(1) & (2):526 (1993).	
	C5	BARISCI, et al., "Conducting Polymer Sensors," TRIP, 4(9):307-311 (1996)	
	C6	BAUM, R. M., "Views on Biological, Long-Range Electron Transfer Stir Debate," C&EN, pp 20-23 (1993).	
	C7	BECHTOLD, R., et al., "Ruthenium-Modified Horse Heart Cytochrome c: Effect of pH and Ligation on the Rate of Intramolecular Electron Transfer between Ruthenium(II) and Heme(III)," J. Phys. Chem., 90(16):3800-3804 (1986).	
	C8	BEATTIE, et al., "Genosensor Technology," Clinical Chemistry, 39(4): 719-722 (1993).	
TS	C9	BIDAN, "Electroconducting conjugated polymers: new sensitive matrices to build up chemical or electrochemical sensors. A Review," Sensors and Actuators, B5:45-58 (1992).	
	C10	Biotechnology and Genetics: Genetic Screening Integrated Circuit," The Economist (February 25-March 3, 1995)	
TS	C11	BLONDER, et al., "Three-dimensional Redox-Active layered Composites of Au-Au, Ag-Ag and Au-Ag Colloids," Chem. Commun. 1393-1394 (1998).	
	C12	BOGUSLAVSKY, L. et al., "Applications of redox polymers in biosensors," Solid State Ionics, 60:189-197 (1993).	
TS	C13	BAMDAD, C. "A DNA self-assembled monolayer for the specific attachment of unmodified double - or single stranded DNA," Biophysical Journal, 75:1997-2003 (1998); (1998).	

Examiner Signature	Teresa Strzelecka	Date Considered	11/13/03
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¹Unique citation designation number. ² See attached Kinds of U.S. Patent Documents at www.uspto.gov or MPEP 801.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

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Substitute for form 1449A/PTO				Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	09/921,645
Sheet	5	of	11	Filing Date	August 3, 2001
				First Named Inventor	Meade, Thomas
				Group Art Unit	1637
				Examiner Name	Strzelecka, Teresa, Ph.D.
				Attorney Docket Number	A-64411-2/RFT/RMS/RMK

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No.*	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
TS	C14	BOWLER, B. E., et al., "Long-Range Electron Transfer in Donor (Spacer) Acceptor Molecules and Proteins," <i>Progress in Inorganic Chemistry: Bioinorganic Chemistry</i> , 38:259-322 (1990).			
	C15	BRUN, A. M., et al., "Photochemistry of Intercalated Quaternary Diazaaromatic Salts," <i>J. Am. Chem. Soc.</i> , 113:8153-8159 (1991).			
	C16	BUMM, et al., "Are Single Molecular Wires Conducting?," <i>Science</i> 271:1705-1707 (1996).			
	C17	CANTOR, C.R., et al., "Report on the Sequencing by Hybridization Workshop," <i>Genomics</i> , 13:1378-1383 (1992).			
	C18	CARR, et al., "Novel Electrochemical Sensors for Neutral Molecules," <i>Chem. Commun.</i> , 1849-1850 (1997).			
	C19	CARTER, et al., "Voltammetric Studies of the Interaction of Metal Chelates with DNA. 2. Tris-Chelated Complexes of Cobalt(II) and Iron(II) with 10-Phenanthroline and 2,2'-Bipyridine," <i>J. Am. Chem. Soc.</i> , 111:8901-8911 (1989).			
	C20	CHANG, I-JY, et al., "High-Driving-Force Electron Transfer in Metalloproteins: Intramolecular Oxidation of Ferrocyclchrome c by Ru(2,2'-bpy) ₂ (Im)(HIS-33) ³⁺ ," <i>J. Am. Chem. Soc.</i> , 113:7056-7057 (1991).			
	C21	CHIDSEY, et al., "Coadsorption of Ferrocene-Terminated and Unsubstituted Alkanethiols on Gold" Electroactive Self-Assembled Monolayers," <i>J. Am. Chem. Soc.</i> , 112:4301-4308 (1990).			
	C22	CHIDSEY, C.E.D., et al., "Free Energy and Temperature Dependence of Electron Transfer at the Metal Electrolyte Interface," <i>Science</i> , 251:919-922 (1991).			
	C23	CHRISSEY, et al., "Covalent attachment of synthetic DNA to self-assembled monolayer films," <i>Nucleic Acids Research</i> , 24(15):3031-3039 (1996).			
	C24	CLERY, "DNA Goes Electric," <i>Science</i> , 267:1270 (1995).			
	C25	Commerce Business Daily Issue of September 26, 1996 PSA#1688.			
	C26	DAVIS, L. M., et al., "Electron Donor Properties of the Antitumour Drug Amsacrine as Studied by Fluorescence Quenching of DNA-Bound			
	C27	DAVIS, L. M., et al., "Elements of biosensor construction," <i>Enzyme Microb. Technol.</i> 17:1030-1035 (1995).			
	C28	DEGANI et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 2. Methods for Bonding Electron-Transfer Relays to Glucose Oxidase and D-Amino-Acid Oxidase," <i>J. Am. Chem. Soc.</i> 110:2615-2620 (1988).			
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	C31	DEINHAMMER, R.S., et al., "Electronchemical Oxidation of Amine-containing compounds: A Route to the Surface Modification of glassy carbon electrodes," <i>Langmuir</i> , 10:1306-1313 (1994).			
TS	C32	DREYER, G. B., et al., "Sequence-specific cleavage of single-stranded DNA: Oligodeoxynucleotide-EDTA/Fe(II)," <i>Proc. Natl. Acad. Sci. USA</i> , 82:968-972 (1985).			

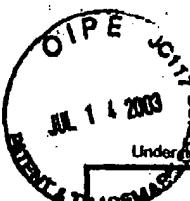
Examiner Signature	Teresa Strzelecka	Date Considered	11/3/03
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Substitute for form 1449A/PTO				Complete If Known	
				Application Number	09/921,845
				Filing Date	August 3, 2001
				First Named Inventor	Meade, Thomas
				Group Art Unit	1837
				Examiner Name	Strzelecka, Teresa, Ph.D.
Sheet	6	of	11	Attorney Docket Number	A-64411-2/RFT/RMS/RMK

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No.*	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
TS	C33 ✓	DROBYSHEV, A., et al., "Sequence Analysis by Hybridization with Oligonucleotide Microchip: Identification of β -thalassemia Mutations," <i>Gene</i> , 188:45-52 (1997).			
	C34 ✓	DUBILEY, S., et al., "Fractionation, phosphorylation and Ligation on Oligonucleotide Microchips to Enhance Sequencing by Hybridization," <i>Nucleic Acids Research</i> , 25(12):2259-2265 (1997).			
	C35 ✓	DURHAM, B., et al., "Electron-Transfer Kinetics of Singly Labeled Ruthenium(II) Polypyridine Cytochrome c Derivatives," <i>Advances in Chemistry Series</i> , 226:181-193 (1990).			
	C36 ✓	DURHAM, B., et al., "Photoinduced Electron-Transfer Kinetics of Singly Labeled Ruthenium Bis(bipyridin) Dicarboxybipyridine Cytochrome c Derivatives," <i>Biochemistry</i> , 28:8659-8665 (1989).			
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	C38 ✓	ELIAS, H., et al., "Electron-Transfer Kinetics of Zn-Substituted Cytochrome c and its Ru(NH ₃) ₅ (Histidine-33) Derivative," <i>J. Am. Chem. Soc.</i> , 110:429-434 (1988).			
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Substitute for form 1449A/PTO				Complete if Known
				Application Number 09/921,645
				Filing Date August 3, 2001
				First Named Inventor Meade, Thomas
				Group Art Unit 1637
				Examiner Name Strzelecka, Teresa, Ph.D.
Sheet	7	of	11	Attorney Docket Number A-64411-2/RFT/RMS/RMK

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TS	C50 ✓	HASHIMOTO, et al., "Sequence-Specific Gene Detection with a Gold Electrode Modified with DNA Probes and an Electrochemically Active Dye," <i>Anal. Chem.</i> 66:3830-3833 (1994).	
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First Named Inventor	Meade, Thomas
Group Art Unit	1637
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Attorney Docket Number A-64411-2/RFT/RMS/RMK

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TS	C68 ✓	LEE, et al., "Direct Measurement of the Forces Between Complementary Strands of DNA," <i>Science</i> , 260:771-773 (1994).	
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First Named Inventor	Meade, Thomas
Group Art Unit	1637
Examiner Name	Strzelecka, Teresa, Ph.D.
Attorney Docket Number	A-64411-2/RFT/RMS/RMK

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TS	C105 ✓	SOUTHERN, et al., "Arrays of complementary oligonucleotides for analysing the hybridisation behaviour of nucleic acids," Nucleic Acids Research, 22(8):1368-1373 (1994).	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 11 of 11

Complete If Known

Application Number	09/921,645
Filing Date	August 3, 2001
First Named Inventor	Meade, Thomas
Group Art Unit	1837
Examiner Name	Strzelecka, Teresa, Ph.D.

Attorney Docket Number A-64411-2/RFT/RMS/RMK

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials ¹	Cits No. ²	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ³
TJ	C122 ✓	WEBER, et al., "Volammetry of Redox-Active Groups Irreversibly Adsorbed onto Electrodes. Treatment Using the Marcus Relation between Rate and Overpotential," <i>Anal. Chem.</i> , 66:3164-3172 (1994).	
	C123 ✓	WILLIAMS, et al., "Studies of oligonucleotide interactions by hybridisation to arrays: the influence of dangling ends on duplex yield," <i>Nucleic Acids Research</i> , 22(8):1365-1367 (1994).	
	C124 ✓	WINKLER, J. R., et al., "Electron Transfer in Ruthenium-Modified Proteins," <i>Chem. Rev.</i> , 92:369-379 (1992).	
	C125 ✓	XU, et al., "Immobilization and Hybridization of DNA on an Aluminum(III) Alkanebisphosphonate Thin Film with Electrogenerated Chemiluminescent Detection," <i>J. Am. Chem. Soc.</i> , 117:2627-2631 (1995).	
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	C128 ✓	YERSHOV, G. et al., "DNA Analysis and Diagnostics on Oligonucleotide Microchips," <i>Proc. Natl. Acad. Sci. USA</i> , 93:4913-4918 (1996).	
	C129 ✓	ZHOU, et al., "Fluorescent Chemosensors Based on Energy Migration in Conjugated Polymers: The Molecular Wire Approach to Increased Sensitivity," <i>J. Am. Chem. Soc.</i> , 117:12593-12602 (1995).	
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TJ	C131 ✓	ZIMMERMANN, et al., "DNA stretching on functionalized gold surfaces," <i>Nucleic Acids Res.</i> , 22(3):492-7 (1994).	

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Examiner Signature	Teresa Strzelecka	Date Considered	11/3/03
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